

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

The specification is amended by the present response to correct a minor grammatical informality.

Claims 1-24 are pending in this application. Claims 1-9 and 15 were rejected under 35 U.S.C. §103(a) as unpatentable over U.S. patent 6,445,483 to Takada et al. (herein "Takada") in view of U.S. patent 5,815,301 to Naiki et al. (herein "Naiki"). Claims 10, 12, 14, and 16 were rejected under 35 U.S.C. §103(a) as unpatentable over Takada in view of Naiki as applied to claim 1, and further in view of U.S. patent 6,046,835 to Yamawaki et al. (herein "Yamawaki"). Claims 17, 18, 20, and 22 were rejected under 35 U.S.C. §103(a) as unpatentable over Takada in view of Naiki and Yamawaki as applied to claims 1, 14, and 16, and further in view of U.S. patent 5,305,022 to Ota et al. (herein "Ota"). Claims 19 and 21 were rejected under 35 U.S.C. §103(a) as unpatentable over Takada in view of Naiki as applied to claims 1 and 15, and further in view of Ota. Claims 11 and 13 were objected to as dependent upon a rejected base claim, but were noted as allowable if rewritten in independent form to include all of the limitations of their base claim and any intervening claims.

Initially, applicants gratefully acknowledge the indication of the allowable subject matter in claims 11 and 13. Addressing now each of the above-noted rejections, each of those rejections is traversed by the present response.

The outstanding rejection is based on the positions that: (1) Takada discloses a scanning optical system in which a second lens has a positive power in the sub-scanning direction, and employs a non-arc surface in the sub-scanning direction; (2) Naiki discloses a scanning optical system in which a first lens has a negative power in the sub-scanning direction and a second lens has a positive power in the sub-scanning direction; and (3) therefore the claimed invention in which a first lens has a negative power in the sub-scanning

direction, a second lens has a positive power in the sub-scanning direction, and at least one surface thereof employs a non-arc surface in the sub-scanning direction, would be realized.

Applicants traverse the above-noted bases for the outstanding rejection on the following positions.

First, applicants note Takada employs a special configuration in which an optical scanning device makes light incident twice on a rotatable scanner (polygon mirror). As disclosed in Takada at column 2, line 20 *et seq.* such a configuration is applied for solving a problem that only one deflection results in an increase in beam diameter on a polygon mirror, and therefore it is necessary to enlarge the size of a reflective surface of the polygon mirror to receive the entire beam when the polygon mirror is rotated.

According to Takada, since the configuration of twice incidence light is applied, transfer optics are required. Accordingly, in such a scanning optical system of Takada employing such a configuration of the optical scanning device, applicants submit the two-lens configuration (lenses 12 and 13) cannot be considered in isolation, but the entire configuration including the transfer optics must be considered as a whole. In this case, according to Takada, a three-lens configuration is applied, and thus the configuration of the optical scanning system of Takada differs from that of the claimed invention.

Moreover, even assuming the optical scanning system of the lenses 12 and 13 of Takada, an entrance surface of the first scanning lens and an exit surface of the first scanning lens of Takada have spherical surfaces since there is no distinction between x and y for curvature radius. Also, since the radius of the entrance surface of 72.17772 is larger than the radius of the exit surface of 53.03585, it is presumed that it has a positive power. In other words, the scanning optical system of the lenses 12 and 13 of Takada have a power configuration in the sub-scanning direction of a positive power and a positive power, which is

different from the claimed invention having a power configuration in the sub-scanning direction of a negative power and a positive power.

Further, according to Naiki, two lenses have a power configuration of a negative power and a positive power in the sub-scanning direction as noted in the Office Action. However, the optical scanning system of Naiki includes not only lenses 9 and 10, but also a cylindrical mirror 12. As a result, the optical system has three total optical devices.

In contrast to Naiki, according to the claimed invention only two lenses are included in the scanning optical system, while the optical performance in a main scanning direction and sub-scanning direction can be kept at a higher level therewith. According to Naiki, in contrast, if the cylindrical mirror 12 is excluded the necessary optical performance in the sub-scanning direction cannot be satisfied.

In such ways, applicants respectfully submit that clearly the teachings in Takada and Naiki differ from the claimed invention, and as a result the claimed invention is clearly distinguishable thereover.

In such ways, applicants respectfully submit that independent claim 1, and the claims dependent therefrom, also patentably distinguish over the applied art.

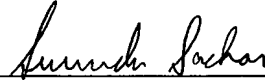
Thereby, applicants respectfully submit that each of currently pending claims 1-24, is allowable.

Application No. 09/678,611
Reply to Office Action of May 21, 2004.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599
Surinder Sachar
Registration No. 34,423

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)
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